



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/501,175

07/09/2004

Peter Dietz

P04,0187

7857

26574

7590

11/16/2005

SCHIFF HARDIN, LLP  
PATENT DEPARTMENT  
6600 SEARS TOWER  
CHICAGO, IL 60606-6473

EXAMINER

VARGAS, DIXOMARA

ART UNIT

PAPER NUMBER

2859

DATE MAILED: 11/16/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/501,175

Applicant(s)

DIETZ, PETER

Examiner

Dixomara Vargas

Art Unit

2859

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 12-22 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 12-22 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 09 July 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 07/09/04, 05/09/05.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_.

## DETAILED ACTION

### *Claim Objections*

1. Claim 13 is objected to because of the following informalities: claim 13 depends on the canceled claim 1. Appropriate correction is required.

### *Claim Rejections - 35 USC § 102*

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 12-17 are rejected under 35 U.S.C. 102(b) as being anticipated by Yui et al. (US 5,708,360 A).

With respect to claim 12, Yui discloses a magnetic resonance apparatus comprising: a basic field magnet for generating a basic magnetic field (Figure 4; #101), at least one eddy current generator (Figure 4, gradient coil power source #105 or RF transmitter #110), at least one electrically conductive structure in which eddy currents caused by said eddy current generator can occur (Figure 4, gradient coils #103 or RF coil #111), said eddy currents, if permitted to occur, interacting with said basic magnetic field to produce Lorentz forces, and a force generator attached to said at least one electrically conductive structure, said force generator being designed and controlled for generating forces counteracting said Lorentz forces for substantially

precluding movement and deformation of said electrically conductive structure from occurring (Columns 14-15, lines 63-67 and 1-30 respectively; Figure 4 #107).

4. With respect to claim 13, Yui discloses said eddy current generator has a control unit associated therewith, and wherein said force generator comprises a control unit for operating said force generator dependent on operation of said control unit for said eddy current generator (Figure 4, #107 and #116).

5. With respect to claim 14, Yui discloses said eddy current generator comprises at least one coil arrangement for generating a magnetic gradient field (Figure 4, #103).

6. With respect to claim 15, Yui discloses said control unit of said eddy current generator comprises a predistorting unit for predistorting a control parameter supplied to said eddy current generator for reducing said eddy currents, and wherein said control unit of said force generator controls said force generator dependent on operation of said predistorting unit (Figure 4, #107).

7. With respect to claim 16, Yui does not explicitly disclose said electrically conductive structure comprises at least a portion of a magnetic resonance apparatus component selected from the group consisting of a vacuum vessel of said basic field magnet, a cryoshield of said basic field magnet, and a coolant vessel of said basic field magnet. However, it is implicitly stated since is known in the art to provide some type of housing for the closed magnet system that constitutes cylindrical coils forming a bore to encase the magnet components in a desirable environment and provide a stabilized structure.

8. With respect to claim 17, Yui discloses said electrically conductive structure comprises at least a portion of a magnetic resonance apparatus component selected from the group consisting of a radio-frequency antenna and a radio-frequency shield (Figure 4, #111 and #112).

***Claim Rejections - 35 USC § 103***

9. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

10. Claims 18-22 rejected under 35 U.S.C. 103(a) as being unpatentable over Yui et al. (US 5,708,360 A) in view of Yoshino et al. (US 5,617,026 A).

With respect to claims 18-22, Yui discloses the claimed invention as stated above in paragraph 3 except for said force generator comprises electrostrictive elements comprising electrostrictive fibers mounted for physical interaction with said at least one electrically conductive structure wherein said electrostrictive elements are spatially disposed at said electrically conductive structure with a density corresponding to a relative density of said Lorentz forces; and at least one sensor for detecting a magnetic field generated by said eddy currents wherein said at least one sensor is connected to said force generator, and wherein said force generator generates said forces for counteracting said Lorentz forces dependent on said magnetic field detected by said at least one sensor. However, Yoshino discloses electrostrictive elements comprising electrostrictive fibers mounted for physical interaction with said at least one electrically conductive structure wherein said electrostrictive elements are spatially disposed at said electrically conductive structure with a density corresponding to a relative density of said

Art Unit: 2859

Lorentz forces; at least one sensor for detecting a magnetic field generated by said eddy currents wherein said at least one sensor is connected to said force generator, and wherein said force generator generates said forces for counteracting said Lorentz forces dependent on said magnetic field detected by said at least one sensor (Figure 7, piezoelectric #130 acting as sensor and electrostrictive element simultaneously). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use electrostrictive elements comprising electrostrictive fibers mounted for physical interaction with said at least one electrically conductive structure wherein said electrostrictive elements are spatially disposed at said electrically conductive structure with a density corresponding to a relative density of said Lorentz forces; and at least one sensor for detecting a magnetic field generated by said eddy currents wherein said at least one sensor is connected to said force generator, and wherein said force generator generates said forces for counteracting said Lorentz forces dependent on said magnetic field detected by said at least one sensor as taught by Yoshino with Yui's magnetic resonance apparatus for the purpose of sensing vibrations and inhibiting deformation and vibration of the system as taught by Yoshino (Abstract).

### ***Conclusion***

11. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The additional prior art cited in the PTO 892 discloses MR systems with eddy current compensation systems.

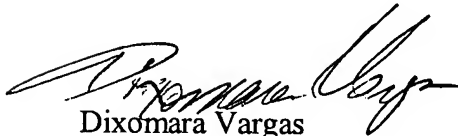
Art Unit: 2859

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dixomara Vargas whose telephone number is (571) 272-2252.

The examiner can normally be reached on Monday to Thursday from 8:00 am. to 4:30 pm..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Diego Gutierrez can be reached on (571) 272-2245. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Dixomara Vargas  
Art Unit 2859  
November 11, 2005



Diego Gutierrez  
Supervisory Patent Examiner  
Technology Center 2800